

Fig. 10. A small piece of lateral perforated part of diaphragm highly magnified.

Fig. 11. Median vertical section of posterior part of male abdomen. *ac. gls.*, accessory glands; *an.*, anus; *cer.*, cercus; *ej. d.*, ejaculatory duct; *g. c.*, genital chamber; *pen.*, penis; *pod. pl.*, podical plate; *r.*, serrated rod above penis; *rect.*, rectum; *sa. pl.*, suranal plate; *s. p.*, spermatic pouch; *X t.*, tenth tergum; *IX s.*, ninth sternum.

Fig. 12. Ventral view of dorsal body-wall with diaphragm and tracheæ attached. *ao.*, aorta; *dp.*, diaphragm; *dp. m.*, fan-shaped muscle bundles ("alary" muscles) of diaphragm; *d. l. tr.*, dorsal longitudinal trachea; *ht.*, heart; *t. tr.*, transverse tracheæ.

Fig. 13. Alimentary canal, left side. *cr.*, crop; *gas. c.*, gastric cæca; *mal. t.*, Malpighian tubules; *a.*, oesophagus; *rect.*, rectum; *vent.*, ventriculus.

NEW NOCTUIDS FOR 1903. NO. 5.*

By JOHN B. SMITH, Sc.D.

Luperina migrata, sp. nov.

Ground color fuscous brown, shaded with smoky and marked with black. Head darker in front, immaculate, collar with a median, black transverse line below which it is paler. Disc of thorax palest, the sides of the patagia smoky; tufting small and neatly marked. Two or three small dorsal tufts of the abdomen evident. The primaries are strigate in appearance, and the transverse maculation is all lengthily dentate. There is a black basal streak and a black streak along the inner margin near base, extending to the t. a. line. The t. a. line is marked by a pair of oblique smoky streaks on the costa, and by a black dent on vein 1; in the submedian interspace it merges into a claviform that is black-edged and extends to the t. p. line. T. p. line geminate, smoky, the included space paler, even and evenly curved to opposite the cell, then inwardly oblique, strongly dentate, the inner portion becoming black as it approaches its lower termination; a blackish shading extends over the junction with the claviform. S. t. line slender, pale, dentate, broken, with difficulty traceable through a series of black or blackish interspaceal streaks. A pale ray extends from the t. p. line to outer margin over veins 3 and 6. There is a narrow black terminal line at the base of the slightly scalloped fringes, which are brown, marked with a conspicuous yellowish dot at the end of each vein. There is a diffuse smoky or blackish median shade, oblique from costa between the ordinary spots, then inwardly oblique, less marked, parallel to the t. p. line. The orbicular is elongate, narrow, oblique, black bordered and narrowly pale ringed. Reniform large, upright, kidney-shaped, pale ringed, partly edged with black scales. Secondaries soiled white at the base, the veins smoky, with a moderate deep smoky outer border: a blackish lunate terminal line at the base of the whitish fringes. Beneath, primaries gray, blackish powdered, with a distinct discal spot, an extramedian line and a series of dark terminal lunules. Secondaries whitish with a gray powdery border along the costa and outer margin, a small discal lunule and a distinct extramedian line. Expands 1.70-1.80 inches = 42-45 mm.

* The fourth paper of this series, containing references to those preceding is in the Trans. Am. Ent. Soc., XXIX, 191-224.

Habitat: Stockton, Utah: New Jersey (!)

Two female examples in good condition. One of these examples has been in my collection over ten years, bearing a "N. J." locality label; but from whom I received it is not recorded. I felt certain that this could not be correct and, as I could not identify it with any exotic form accessible to me, I simply waited until I received the example from Utah through Mr. George Franck. This matches my specimen exactly, save that it is fresher and more intense in its maculation. The species is a large one, allied to *burgessi*, but with the strigate maculation that is not familiar to me in any other form.

***Chytonix parvimacula*, sp. nov.**

Ground color dull smoky brown, basal and lower portion of the median space much darker than the other parts of the primaries. Head and thorax mottled with lighter and darker scales, but forming no obvious ornamentation. Primaries with all the markings well defined, but not contrasting. Basal line extending almost across the wing, geminate, inner portion blackish, included space paler. T. a. line black, preceded by a narrow whitish line, outwardly oblique, almost even to the submedian vein, below which it bends inwardly to the margin. T. p. line black, followed by a very narrow paler line, abruptly bent outward on the costa, then with a rather even curve to the inner margin. S. t. line pale, diffuse, irregular, forming a small W centrally; a slight mossy greenish tinge extending on each side of the line. A broken blackish terminal line and the fringe with a smoky interline. The upper margin of a claviform spot is indicated, surmounted by a few greenish scales, and a narrow white bar extends from the end of this indicated spot to the t. p. line. Orbicular of good size, irregularly oval, oblique, narrowly outlined, annulate with gray, center concolorous. Reniform moderate, a little constricted centrally, lower part somewhat dilated, incompletely outlined and annulate. Secondaries rather dark smoky brown, fringes paler. Beneath whitish, mottled with smoky, both wings with a darker extra-median line; primaries with a paler terminal area, secondaries with a discal lunule. Expands 1.12 inches = 28 mm.

Habitat: "Middle California."

One male example in fair condition, the label giving no indication of its source or the exact locality where collected. The species has the wing-form of *sensilis* rather than *palliatricula*; but is more nearly like the latter in maculation and in general appearance.

***Chytonix laticlava*, sp. nov.**

Ground color dull smoky gray; primaries paler, with a brown tinge in the median space above the submedian transverse bar. Head and thorax mottled, collar with an obscure darker median line; patagia marked with gray—though this is probably a variable character. Abdomen with the usual tufts. Primaries with the maculation well defined. A short black basal dash which broadens and forks at the outer end; a short black streak along the inner margin. Basal line marked by geminate dots on the costa. T. a. line well removed from base, single, somewhat diffuse, black, out-

wardly oblique to the submedian interspace, then forming an almost right angle, inwardly oblique to the inner margin. T. p. line unusually near outer margin; geminate, even, dark smoky, the inner part becoming black inferiorly; included space whitish powdered; evenly outcurved over the cell and evenly oblique below it. S. t. line very irregular, defined only by contrasts in color between the shadings in the terminal and s. t. spaces; a trigonate dusky shade in the terminal space above the middle and another above the hind angle are most conspicuous and between these two or three preceding black marks indicate an obscure W, the teeth of which reach the outer margin. A black, somewhat lunate terminal line. Fringes with a smoky interline. Claviform concolorous, short, very broad, black margined; from its lower edge a broad black bar extends to the t. p. line, beyond which the s. t. space is whitish. Orbicular large, oval, oblique, pale, not well margined. Reniform large, broadly ovate, outlined by darker scales and obscurely darker in center. A black costal spot indicates a median line of underside faintly reproduced above. Beneath gray, powdery, with a discal spot and an extramedian line on all wings. Expands 1.16 inches = 29 mm.

Habitat: Pullman, Washington, August 14 and 30, 1897.

One pair taken at light and somewhat defective, from Professor C. V. Piper. The species has been in my collection for some time, associated with *palliatricula*, of which I have now a nice series which excludes the present form. *Laticlava* is paler, more ashen in tint, the secondaries much paler; there is no trace of the white dot at the end of the transverse dark bar, while on the other hand the s. t. space within hind angle becomes whitish. Other differences of details appear in the description.

***Cerma fascia*, sp. nov.**

Ground color pale creamy yellow, overlaid and mottled by brown, rusty and black scales. Head and palpi pale creamy yellow, immaculate; collar a little mottled with silvery gray scales; disc gray and brown centered, the basal tuft being nearly white. The little abdominal tuft at base is dark gray. Primaries powdery gray, more or less overlaid or mixed with yellow and rusty brown scales, the space between the basal and t. a. lines and the s. t. space paler or even whitish, giving the appearance of a pale subbasal fascia and a more irregular, mottled terminal pale area. Basal line black, narrow, irregular, not well defined. T. a. line nearly upright, irregular, marked chiefly by the difference in color between the subbasal and median spaces. T. p. line white, irregularly denticulate, preceded by black and followed by rusty scales; abruptly bent below costa, squarely and broadly exerted over the cell. There is no obvious s. t. line, the terminal area being irregularly mottled, yet leaving a better marked blotch on the margin above the hind angle and another above the middle. A distinct, black, broken terminal line. The long fringes are brown, mottled, cut with white opposite the veins. Orbicular round or nearly so, white ringed, narrowly edged with black. Reniform of good size, oblong, oval, a little constricted centrally, incompletely white ringed and not completely defined. Secondaries very pale smoky, the veins a little darker. Beneath, primaries quite smoky, the ter-

minal area paler; secondaries whitish with a smoky discal lunule and extramedian line. Expands, 1.08-1.16 inches = 27-29 mm.

Habitat: Doble, California, in early August.

Two good females, collected by Mr. George S. Hutson in the Colorado desert. The species resembles *olivacea* in general appearance, but has the maculation much more diffuse. The paler area just before the t. a. line also seems to be characteristic, none of the five examples of *olivacea* now before me showing any tendency that way. It is likely to be found in other of the desert localities.

Fishia vinela, sp. nov.

Ground color ashen gray, marked and dusted with black and brown. Head with a black frontal line. Collar with a black median transverse line; patagia with a black line through the center; disc gray and brown powdered. Primaries apparently have the lower third of the wing darker, the maculation over the costal area obscure and not well defined. An irregular, narrow black basal streak, which does not reach the t. a. line. A black streak along the internal margin, reaching to the t. a. line but not quite to the base. T. a. line geminate, incomplete, marked as a pair of oblique dusky streaks on the costa, nearly lost in the middle of the wing and again marked by a long outcurve below the submedian vein. T. p. line obscure, dentate, geminate, the outer part lost over the cell, the inner portion slender, very faint from the costa to vein 3, below which it is black, the lunule in the submedian interspace best marked and followed by a whitish shading. S. t. line is a line of pale dots in a series of black or blackish interspaceal streaks which are most obvious over the hind angle and above the middle. There is a narrow blackish terminal line, beyond which the smoky fringes are based by a narrow yellow line. The outer margin is obviously though not deeply scalloped and the hind angle a little retreating. Orbicular outlined in blackish, a black line bordering it below and extending across the median space to the t. p. line. Orbicular oval, a little oblique, moderate in size, obscurely defined. Reniform large, upright, broad kidney-shaped, obscurely and incompletely pale ringed, not otherwise defined. Secondaries white, semi-transparent, with a blackish terminal line; veins smoky; a reddish flush along inner margin. Beneath whitish, powdery, most so along costal area and toward apices; a dusky median line and a small discal spot. Expands 1.60-1.80 inches = 40-45 mm.

Habitat: Denver, Colorado, October 3 (Oslar); Glenwood Springs, Colorado, September and October (Barnes).

Three male examples in good condition are before me at present. Dr. Barnes has others and it is probable that specimens are in collections mingled with *Hadena evelina* French. With the latter species this new form agrees in general type of maculation and wing-form; but the primaries are a little narrower, the ornamentation is more confused, powdery and paler, while the secondaries are almost white. As a whole the species is smaller and less robust than its Californian ally.

Hadena evelina, by the bye, must also be placed as a *Fishia* though the spinulation of the middle and hind tibiæ is so obscure as to be readily overlooked except on the closest examination. In fact it was not until I had seen the spines in *vinela* that I discovered them sparsely hidden also in the vestiture of *evelina*, this difference in armature affording another point of distinction between them.

***Anytus tenuilinea*, sp. nov.**

Ground color very pale ashen gray, giving the appearance of an *Acronycta*. Head rusty brown below a dusky, transverse frontal line, somewhat smoky on the vertex. Collar with a black transverse line; disc of thorax smoky, patagia with a powdery blackish submargin. Primaries with the marking neatly and clearly written. A line of black scales indicates a narrow basal streak. T. a. line single, black, outwardly oblique, outcurved between the veins, that in the submedian interspace drawn into a tooth from which a slender black streak extends to the t. p. line. T. p. line geminate, the outer part a mere smoky shade line, the inner slender, black, lunulate, forming a long outcurve under the cell and a deep incurve in the submedian interspace to meet the streak from the t. a. line. The s. t. line is vague and indicated by differences in shade between the s. t. and terminal spaces and by a series of darker elongate spots in the interspaces. A series of black terminal lunules, beyond which the fringes are cut with brown. All the veins are marked with black scales. Orbicular large, oval, oblique, inferiorly a little drawn out, paler than the surroundings, not otherwise defined. Reniform of moderate size, kidney-shaped, defined by black scales within which there is an incomplete whitish ring. Secondaries smoky, paler at base within a vague median shade line; the fringes whitish beyond a dark, broken terminal line. Beneath, primaries smoky, with a vague discal lunule and median line; secondaries paler, more ashen, median shade and discal dot better marked. Expands 1.50 inches = 37 mm.

Habitat: Stockton, Utah.

One good female from Mr. George Franck. The species appears to be somewhat narrower-winged than the others and differs from all those previously described by the slender clean-cut markings on a pale ground, which give it a deceptive *Acronycta*-like appearance.

***Euxoa** *nesilens*, sp. nov.**

Ground color a pale yellowish-gray, maculation of a deeper, luteous or smoky gray. Head a little smoky on the vertex, palpi smoky at the sides. Collar with a transverse, smoky median shading, which tends to become a line. Thorax concolorous. Primaries without conspicuous contrasts or shadings; yet all the markings evident, just enough darker than the ground to make them readily recognizable. Costal area a little paler. No basal streak. Basal line geminate, marked on costa and median vein only. T. a. line geminate, nearly upright, a little outcurved in the interspaces, tending to become broken and to the loss of the inner portion. T. p. line crenulate, single or with the outer portion obscurely marked, rather abruptly bent

* An older term for *Carneades*.

on the costa, nearly parallel thence with the outer margin. S. t. line pale, a little irregular, marked by a dusky preceding shade. There is a series of interspaceal terminal lunules. Fringes concolorous. The claviform is vaguely traceable in some examples, wanting in others. Orbicular large, irregularly ovate, oblique, paler than the ground, the margins edged with darker scales. Reniform large, kidney-shaped, paler than the ground, incompletely defined by a yellowish annulus and brown marginal scales. Secondaries smoky whitish, paler at the base, the veins and a discal lunule darker. Beneath yellowish-white. The disc of primaries smoky; both wings with an incomplete, diffuse median shade line and a smoky discal spot. Expands 1.48-1.68 inches = 37-42 mm.

Habitat: Brandon, Manitoba; Calgary, Canada, July 5-12 (F. H. Wolley Dod).

Two males and three females are before me at present; others are in the collection of Mr. Dod, who called my attention to the species. In general appearance it resembles *silens*, but does not have the black basal streak nor the blackish suffusion between the ordinary spots. On the other hand it does have more complete, better marked median lines. Attention once drawn to the species, its distinctness is clear and its association is with *basalis*, from which, however, it differs obviously in color.

NOTES ON COCCINELLIDÆ. — II.

BY CHARLES W. LENG, B.S.

(PLATES XIV AND XV.)

Tribe II. *Coccinellini*.

Front coxal cavities closed; base of antennæ exposed; metasternal and ventral coxal lines distinct; body loosely articulated, not very contractile; usually rounded in outline, sometimes oblong, never pubescent above.

The technical definition of this tribe is given above; it includes those lady-bugs most commonly met with, as the two-spotted lady-bug (*Adalia bipunctata*) often found in houses, and the nine-spotted lady-bug (*Coccinella 9-notata*) which is abundant in gardens; most of the species are about the size of these common representatives of the group, round and convex. They feed on plant lice and are useful insects.

The genera are by no means strongly separated. The following table is based upon that printed by Major Casey in this Journal (Vol. VII, No. 2, June, 1899), simplified by the omission of the foreign